APPENDIX I: FIRE PROTECTION PACKAGES

1. General Fire Protection Requirements. All of the fire protection requirements in this Appendix apply to all subdivisions.

1.1 Where review or approval of any fire protection requirement is to be performed by the Fire Protection Authority Having Jurisdiction (FPAHJ), another qualified authority or expert, approved by the FPAHJ, may provide such review or approval at the expense of the subdivider/property owner.

1.2 Access to and from and within the subdivision – All roads shall meet or exceed Gallatin County road standards, including but not limited to construction, width and grade. The access routes shall be approved by the FPAHJ.

1.3 The FPAHJ may require a particular fire protection plan (fill sites, tanks, sprinklers, etc.). The FPAHJ may also require additional fire protection features depending on the subdivision fire protection requirements.

1.4 Use of Existing Fire Protection Water Supply Features – Credit for the use of existing fire protection water supply features may be considered by the FPAHJ provided the feature meets the current applicable Gallatin County Fire Council fire protection standards and be approved by the FPAHJ. A written plan shall be provided to and approved by the FPAHJ providing for funding, use, maintenance and future upgrades of the feature. If the proposed plan requires any cooperative agreements, or actions, between the subdivider/property owner and any other party, those shall be completed prior to the proposed plan being accepted by the FPAHJ. This includes but is not limited to contracts, joint ownership, etc.

The subdivider/property owner shall provide, at their expense, current performance test data for the fire suppression water supply system based on current field measures, certified in writing by a professional engineer licensed in Montana. The subdivider/property owner shall provide detailed descriptions and specifications and drawings of the as-built construction and water supply system components of the pond, water main system, pump, and hydrant(s) to the FPAHJ. The FPAHJ may require the subdivider/property owner to pay for an independent validation review of the fire protection water system by a Professional Engineer ("P.E.") licensed in Montana and approved by the FPAHJ.

1.5 Any structure over 3,600 square feet or with a building height greater than 35 feet shall be subject to additional requirements for fire protection water supplies (amount, delivery rate, and location) as described according to the construction and square footage of the structure in the current edition of Fire Code adopted by the State of Montana. The FPAHJ may accept the installation of an approved fire protection sprinkler system meeting the current, applicable National Fire Protection Association (NFPA) standard in place of, and equivalent to, the additional fire protection water supply requirement specified in this Appendix.

1.6 Fire Protection Covenants – All covenants required to meet the fire protection requirements shall be recorded with the subdivision final plat. Any amendment to the fire protection covenants must be approved by the County Commission and the FPAHJ. The FPAHJ is granted standing in the covenants of the subdivision for the purpose of enforcing all fire protection requirements. A fire protection note, calling attention to the fire protection requirements shall be placed on the final subdivision plat.

The following covenants may, at the discretion of the FPAHJ, be included as a requirement of the fire protection plan to mitigate potential threats from fire. This list is not all inclusive:

a. Maintenance of Fire Protection Water Supply Features and Fire Department Use (i.e., open water fill sites, buried water tanks) – Fire protection features must be maintained to their original performance capability in perpetuity by, and at the expense of, the property owners. Performance of all fire protection features shall be certified annually, by the use of field measures, by the FPAHJ or by a PE licensed in Montana. If a PE is to be used, a report shall be submitted, in writing, to the FPAHJ to ensure continued specified capability. The annual certification by the PE shall be at the expense of the property owners. The PE shall be approved by the FPAHJ.

   The fire department shall have unrestricted use, in perpetuity (at no cost to the fire department) of the fire protection features including but not limited to water sources, pumps, and hydrants.

b. Separation Between Buildings on the Same Lot – The separation between all structures protected by approved fire sprinkler systems and all detached, non-sprinkler protected structures, including accessory buildings, shall be a minimum of 50 feet.

c. Driveways to Structures – To allow for emergency vehicle access to structures, the property owner shall provide a driveway meeting the following requirements as approved by the FPAHJ: a minimum unobstructed driving surface of 12 feet for driveways less than 300 feet long and a 16 foot driving surface for any driveway over 300 feet long; a vertical clearance of 15 feet; and a four foot zone of reduced vegetation on each side of the driving surface. If a driveway that is less than 16 feet wide is approved by the FPAHJ, turnouts shall be designed and constructed every 300 feet along the driveway's length.

   (i.) For all buildings or structure sites on driveways over 300 feet in length, the property owner shall provide a turnaround including but not limited to a drive-through, cul-de-sac or hammerhead turn-a-round.

   - A turnaround shall be within 50 feet of the building or structure when there is no community water system with fire hydrants.

- A turnaround shall be within 150 feet when there is a community water system with fire hydrants.

(ii.) All gates, bridges, culverts, cattle guards and all related constructs affecting access shall be a minimum of two feet wider on each side of the driveway. The entire driveway shall have a 30-ton minimum rating for two-axle trucks including all bridges, culverts, cattle guards and all other constructs of the driveways.

1.7 Alternative Fire Protection Features or Systems – Alternative fire protection technologies, means, features or systems may be approved by the FPAHJ where they provide fire protection equivalent to or greater than required in this Appendix.

1.8 Addressing Posted – Addressing on the building shall be contrasting on the building and reflective on the street. Number size shall be four-inch (4'') minimum height. Sign numbers and the background shall be made of retro-reflective material. Address signs shall meet the requirements of the FPAHJ.

1.9 Fire Apparatus Access – Fire apparatus shall be able to park on a roadway, driveway, or fire apparatus parking area within 150 feet of all parts of the exterior of the building. The roadway, driveway, or fire apparatus parking area shall be engineered and constructed to safely support a 30-ton, two-axle fire apparatus.

1.10 Mapping – A map or electronic file, in the format approved by the FPAHJ, of the subdivision shall be provided to the FPAHJ indicating streets, addresses, street names, fire protection features, lot lines, building envelopes, utilities, easements, etc.

1.11 Fire Protection Water Supply Feature Standards – All fire protection water supply features shall meet or exceed the appropriate fire protection standard adopted by the Gallatin County Fire Council, which are based on the current edition of the Fire Code, as adopted by the State of Montana.

1.12 Travel Routes to Fire Protection Water Supply Features – Travel routes to fire protection water supply features shall be approved by the FPAHJ.

1.13 Fire Protection Sprinkler/Fire Alarm System Project Tracking Process – Fire protection sprinkler/fire alarm project tracking process may be required, by the FPAHJ, where a structure has a fire protection sprinkler system installed as a part of a subdivision fire protection plan. The tracking process may be administered by the FPAHJ. The tracking process requirements are as follows:

a. The property owner shall provide 14-day written notice of intent to build a structure with fire protection sprinkler system, and where applicable, fire alarm system, engineered by a PE. A plans review fee will be paid by the

subdivider/owner to the FPAHJ. A fee schedule shall be determined by the FPAHJ. In lieu of a plans review fee and at the discretion of the FPAHJ, the FPAHJ may require a third-party review (selected by the FPAHJ) of the plans at the expense of the subdivider/property owner.

b. The property owner shall provide written certification by a PE that the fire protection sprinkler system and, where applicable, fire alarm system, are installed and fully operational prior to enclosure with sheet rock or interior wall covering installation. The FPAHJ shall be permitted to witness the testing with a minimum of 48 hours advanced notice.

c. The subdivider or property owner shall provide written certification, to the FPAHJ, by a PE and the subdivider or property owner that all fire protection requirements have been met prior to final occupancy. The FPAHJ shall be permitted to witness the checklist inspections required in this section. The subdivider or property owner shall provide the FPAHJ with 48 hours notice of the checklist inspections.

d. Occupancy shall be permitted only when all fire protection requirements have been met as determined by the FPAHJ.

1.14 Back-Up-Power Requirements for Water Distribution Systems Providing Fire Protection Water Supply:

a. Back-up power is required for water distribution systems supplying a fire hydrants or fire sprinkler systems for the wells and/or pumps if there is not any storage tanks or ponds as part of the system. The subdivider/property owner shall provide, at their expense, a back up power supply and automatic transfer switching system for the fire protection water supply system that supplies the fire sprinkler systems in the buildings and hydrants. The back up power supply system shall be engineered by a P.E. licensed in Montana. The P.E. designing back up power system shall certify in writing that the back up power supply system will be capable for the duration of the capacity of the water supply. Documentation of the proposed back up power supply system shall be provided to the FPAHJ 30 days prior to final plat approval. The back up power system design documentation shall include certification of the system capacity and design by signature of the P.E. licensed in Montana. Prior to installation, the back up power sources and automatic transfer switching systems shall meet the requirements of, and be approved by, the FPAHJ. The subdivider may be required to pay for an independent validation review of the fire protection water system back up power system they propose to the FPAHJ by a P.E. licensed in Montana and selected by the FPAHJ.

b. Back-up power, meeting the requirements of Section 1.14(a) of Appendix I, or a draft connection, meeting requirements of the FPAHJ, is required for water distribution systems supplying a fire hydrants, or fire sprinkler systems for the wells and/or pumps if there are storage tanks or ponds as part of the system.

1.15 Subdivisions with mixed residential and commercial use or buildings shall have fire protection requirements using portions (residential, commercial, etc.) of these fire protection requirements that addresses the uses (residential, commercial, etc.) for the subdivision.

1.16 A Vegetation Management Plan is required for all subdivisions that have any Common Space, Open Space or Parkland. See Section 7.1(d) of Appendix I.

2. Fire Protection Requirements for Major Residential Subdivisions (49 or less lots/units). For major residential subdivisions, the subdivider/property owner shall provide one of the following fire protection packages:

2.1 Fire protection water supply system capable of 1,000-gallons-per-minute at 20 psi minimum through an approved public water system with fire hydrants(s), for a minimum of 120 minutes. The distribution of fire hydrants shall meet the requirements of the current edition of the Fire Code, as adopted by the State of Montana; or

2.2 Fire protection water tank(s), constructed from plastic, concrete, fiberglass or other materials, approved by the FPAHJ. The capacity of the tanks shall be a minimum of 30,000 gallons with a pump capable of delivering 1,000-gallons-per-minute at 20 psi from an approved fire hydrant. The maximum travel distance to the edge of the lot line furthest from a hydrant on a route approved by the FPAHJ shall be 1,000 feet. The tank(s) shall have an automatic water supply to maintain the required capacity; or

2.3 Installation in every residential or combination use structure, a fire protection sprinkler system. The Fire Sprinkler System shall be connected to a public water supply, if available and the system shall be engineered by an licensed engineer (P.E.), installed and fully operational and compliant with the current edition of the applicable NFPA standard and one of the following fire protection water supply packages:

a. Fire protection water tank(s), or ponds, of 30,000-gallon capacity with a pump capable of delivering 500-gallons-per-minute at 20 psi from an approved fire hydrant with a maximum approved travel distance from the furthest edge of the lot line from the hydrant to tank of 5,000 feet. The tank(s) shall have an automatic water supply to maintain the required captivity. Back-up power or a draft connection is also required; or

b. Fire protection water supply system capable of 500-gallons-per-minute at 20 psi minimum through an approved public water system with fire hydrants, for 120 minutes. Fire hydrants shall be installed no more than 1000-foot intervals.

3. Fire Protection Requirements for Major Residential Subdivisions (50 or more lots/units). For major residential subdivisions, the subdivider/property owner shall provide one of the following fire protection packages:

3.1 Fire protection water supply system capable of 1,000-gallons-per-minute at 20 psi minimum through an approved public water system with fire hydrants(s), for a minimum of 120 minutes. The distribution of fire hydrants shall meet the requirements of the current edition of the Fire Code, as adopted by the State of Montana; or

3.2 Installation in every residential or combination use structure, a fire protection sprinkler system. The Fire Sprinkler System shall be connected to a public water supply and the Fire Sprinkler System shall be engineered by an licensed P.E., installed and fully operational and compliant with the current edition of the applicable NFPA standard and one of the following fire protection water supply packages:

a. Fire Protection Water Supply system capable of 1000-gallons-per-minute at 20 psi minimum, through an approved public water system, with fire hydrants, for 60 minutes. Fire hydrants shall be installed no more than 1000-foot intervals; or

b. Fire protection water supply system capable of 500-gallons-per-minute at 20 psi minimum, through an approved public water system, with fire hydrants, for 120 minutes. Fire hydrants shall be installed no more than 1000-foot intervals.

4. Fire Protection Requirements for One Lot Minor Residential Subdivisions. For a one (1) lot minor residential subdivision, the subdivider/property owner shall provide one of the following fire protection packages:

4.1 An underground tank or pond of 10,000 gallons capable of delivering 1,000-gallons-per-minute from an approved fire hydrant with a maximum approved travel distance from the furthest lot line to the hydrant of 1,000 feet; or

4.2 Installation in every residential or combination use structure a fire protection sprinkler system. The Fire Sprinkler System shall be connected to a public water supply, if available and the system shall be engineered by a licensed P.E., installed and fully operational and compliant with the current edition of the applicable NFPA standard.

5. **Fire Protection Requirements for Two-through Five-Lot Minor Residential Subdivisions**. For a two-to five-lot minor residential subdivision, the subdivider/property owner shall provide one of the following fire protection packages:

5.1 A storage tank(s) or pond of 30,000 gallons with a pump capable of delivering 1,000-gallons-per-minute at 20 psi from an approved fire hydrant. The maximum approved travel distance from the lot most distant from the hydrant to the hydrant shall be 1,000 feet. The tank(s) shall have an automatic water supply to maintain the required capacity. The tank(s) can be underground, on the ground, or elevated; or

5.2 Installation in every residential or combination use structure, a fire protection sprinkler system. The Fire Sprinkler System shall be connected to a public water supply, if available and the system shall be engineered by an licensed P.E., installed and fully operational and compliant with the current edition of the applicable National Fire Protection A standard and one of the following fire protection water supply packages:

a. Storage tank or pond of 10,000-gallon capacity with a pump capable of delivering 500-gallons-per-minute at 20 psi from an approved fire hydrant with a maximum approved travel distance from the furthest edge of the lot line from the hydrant to tank of 5,000 feet; or

b. Fire protection water supply system capable of 1,000-gallons-per-minute from draft through an approved fire hydrant system, for 120 minutes. Maximum travel distance from the edge of the lot line furthest from the hydrant to the tank, on a route approved by the FPAHJ, shall be 5,000 feet.

6. **Fire Protection Requirements for Commercial Subdivisions and Buildings.** Commercial buildings and buildings which are used for purposes other than as dwellings or as lodging houses which accommodate 10 persons or less shall provide the following fire protection features:

6.1 Each commercial structure that is required to provide fire detection and/or fire protection sprinkler systems, shall have installed a lock box to hold keys to the exterior and interior doors. The lock box make and model, and the location shall be approved by the FPAHJ. The lock box shall contain current contact information for a local, responsible party or parties who will respond to fire alarms or fire sprinkler system alarms.

6.2 A fire protection water supply shall be provided that meets or exceeds the minimum required fire flow and flow duration for buildings as described in the current edition of the Fire Code, as adopted by the State of Montana.

6.3 All commercial structures that are required to provide fire detection and/or fire protection sprinkler systems, either by code or as part of the Fire Protection Plan, shall have the plans reviewed and approved by the FPAHJ. These systems shall comply with the current edition of the Fire Code, as adopted by the State of Montana, for design and installation.

6.4 Structures with fire protection sprinkler systems shall be allowed to have a minimum of one (1) approved fire hydrant delivering 1000-gallons-per-minute at 20 psi for 2 hours at a maximum travel distance of 5,000 feet to the furthest lot line on an FPAHJ-approved route.

6.5 Fire hydrant locations and distribution – Fire hydrants shall be provided in accordance with the current edition of the Fire Code, as adopted by the State of Montana. Locations and distribution shall be reviewed and approved by the FPAHJ before construction.

a. Consideration of existing fire hydrants – Existing fire hydrants on public streets are allowed to be considered as available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads.

6.6 All structures shall be built meeting or exceeding the requirements of the current editions of the Fire and Building codes, as adopted by the State of Montana.

7. WILDLAND/URBAN INTERFACE :

For areas identified as Wildland/Urban Interface in the Gallatin County Community Wildfire Protection Plan (CWPP) or by the United States Forest Service, Montana Department of Natural Resources and Conservation, a local FPAHJ, a local growth policy, special standards are required.

7.1 Additional Requirements: For subdivisions proposed in areas that are classified, by the CWPP, as Wildland/Urban Interface Area or as indicated as High or Extreme Hazard by the Wildland Fire Risk and Hazard Severity Assessment Form, the following standards shall apply:

a. Water Supply - An additional 500-gallons-per-minute shall be included in the base fire flow requirement.

b. Access and Evacuation -

(i.) Road rights-of-way shall be cleared of construction slash. The required clearance of the right-of-way shall be maintained, in perpetuity, in a fire-resistive state.

(ii.) All bridges and cattle guards shall be constructed of noncombustible materials.

(iii.) Subdivisions shall be designed to allow emergency vehicle access to wildland areas behind structures by:

- Providing a perimeter roadway approved by FPAHJ along the entire wildland side of a development; or by
- Providing a fuel break that has been reviewed and approved by the FPAHJ, and accessible to fire apparatus.

c. Building Density Requirements - Densities in areas of steep slopes and/or dense forest growth shall be appropriate per the site conditions.

d. Vegetation Management - A vegetation management plan shall be submitted for review and approval of the FPAHJ.

(i.) Intent - The intent of the vegetation management plan is to:

- Reduce fuel loading and hazard rating and provide continuous maintenance of the fuel load.
- To protect life and property.
- To reduce the potential for a fire on improved property from spreading to wildland fuels and from a fire in wildland fuels from spreading to the structures.
- To provide a safe working area and access for emergency responders.

(ii.)Components – Vegetation management plans shall describe all actions that will be taken to prevent a fire from being carried toward or away from the development. A vegetation management plan shall include at least the following information:

- A copy of the site plan for the development.
- Methods and timetables for controlling, changing or modifying areas on the property. Elements of the plan shall include removal of slash, snags, vegetation that may grow into overhead electrical lines, other ground fuels, ladder fuels, and dead trees, and the thinning of live trees.
- A plan for continuously maintaining the proposed fuel-reduction measures.
- Establishment of the requirements for defensible space as appropriate per site conditions and as described in the following section.

e. Defensible Space - Provisions of this section are intended to modify the fuel load in areas adjacent to structures to create a defensible space.

- Fuel Load Reduction - The dimensions of the defensible space shall be based upon the requirements established in the Vegetation Management Plan.

- Ground Fuel - Ground fuel within the defined defensible space, shall be treated (mowed, mulched, converted to compost, etc.) or removed annually or more frequently as directed by the FPAHJ.

- Thinning and Pruning - Live vegetation within the defensible space shall have all dead material removed and shall be thinned and pruned to reduce fire intensity and rate of spread.

- Dead Trees - Dead trees within the defensible space of buildings shall be removed.

- Ladder Fuels - Vegetation under trees, within the defined defensible space, shall be maintained at a height that will preclude its functioning as a "ladder" for fire to travel from ground vegetation into the tree crown.

- Fire-Resistant Landscaping - Where landscaping is desired, the proposed vegetation type and/or management practices shall be approved by the FPAHJ and be in compliance with fire resistant landscaping guidelines.

- Defensible Space Maintenance - The defensible space plan shall include a maintenance element with the responsibility for maintenance defined.

f. Fuel Breaks & Greenbelts - Open space, park land and recreation areas (including greenbelts, riding or hiking trails) should be located, where appropriate, to separate communities, groups of structures, or residences and other buildings from densely forested areas. These breaks can slow or stop the spread of an oncoming wildland fire.

- Fuel Breaks & Greenbelts Required - If the FPAHJ determines it is necessary to reduce the threat of wildland fires to life or improved property, fuel modification outside of the defensible space shall be required.

- Fuel Breaks & Greenbelt Maintenance - The vegetation management plan shall include a maintenance element with the responsibility for maintenance of the fuel breaks and greenbelts defined.

8. WILDLAND/URBAN INTERFACE FIRE PROTECTION COVENANTS

All covenants required to meet the fire protection requirements shall be recorded consistent with the Subdivision Regulations. The County Commission shall consult the FPAHJ prior to adoption or amendment of the fire protection covenants. The FPAHJ is granted standing in the covenants of the subdivision for the purposes of enforcing all fire protection requirements. A fire protection note calling attention to the fire protection requirements, approved by the FPAHJ, shall be placed on the final plat.

8.1 Covenants: The following covenants may be included as a requirement of the Fire Protection Plan to mitigate potential threats from fire:

a. Maintenance of Fire Protection Water Supply (for example: water systems, draft sites, fill sites, buried tanks or open ponds) – Fire protection water supplies must be maintained to their original performance capability in perpetuity by the property owners. Performance of all fire protection features shall be certified annually by a licensed P.E. and submitted to the FPAHJ to ensure continued specified capability.

b. Maintenance of Fire Protection Features (for example: defensible spaces, Driveway routes, fuel breaks, fuel modification plan, greenbelts, etc.) - Fire protection features must be maintained to their original performance capability in perpetuity by the property owners.

c. In the event that automatic sprinkler systems are an acceptable alternative for fire protection, as approved by the FPAHJ, the requirements of installation shall be included in an agreement with the local fire protection authority which shall be filed with the plat.

9. Definitions.

a. Accessory Building or Structure. Any building or structure used incidentally to another building or structure.

b. Address Identification Signs. Signs displaying the numeric address(as approved by Gallatin County GIS) of the structure. Address signs shall meet the requirements of the FPAHJ.

c. Alternative. A system, condition, arrangement, material, or equipment submitted to the Fire Protection Authority Having Jurisdiction (FPAHJ) as a substitute for a code requirement.

d. Approved. Acceptable to the Fire Protection Authority Having Jurisdiction.

e. Aspect. Compass direction toward which a slope faces.

f. Building. Any structure used or intended for supporting any occupancy.

g. Combustible. Any material that, in the form in which it is used and under the conditions anticipated, will ignite and burn (see Noncombustible).

h. Community Wildland Protection Plan (CWPP). Community Wildfire Protection Plans are authorized and defined in Title I of the Healthy Forests Restoration Act (HFRA) passed by Congress on November 21, 2003 and signed into law by President Bush on December 3, 2003.

The Healthy Forests Restoration Act places renewed emphasis on community planning by extending a variety of benefits to communities with a wildfire protection plan in place. Critical among these benefits is the option of establishing a localized definition and boundary for the wildland-urban interface (WUI) and the opportunity to help shape fuels treatment priorities for surrounding federal and non-federal lands.

The CWPP, as described in the Act, brings together diverse local interests to discuss their mutual concerns for public safety, community sustainability and natural resources. It offers a positive, solution-oriented environment in which to address challenges such as: local firefighting capability, the need for defensible space around homes and subdivisions, and where and how to prioritize land management – on both federal and non-federal land.

i. Defensible Space. An area as defined by the FPAHJ, between an improved property and a potential wildland fire where the combustibles have been removed or modified with the following intent:

(1) To protect life and property from wildland fire.

(2) To reduce the potential for fire on improved property spreading to wildland fuels.

(3) To provide a safe working area for fire fighters protecting life and improved property.

j. Dry Hydrant. An arrangement of pipe permanently connected to a year around water source other than a piped, pressurized water supply system that provides a ready means of water supply for firefighting purposes and that utilizes the drafting (suction) capability of fire department pumpers. The point of connection between the water source and the fire department pumper shall be a fire hydrant approved by the FPAHJ.

k. Dwelling. One or two living units, each providing complete and independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.

l. Evacuation. The temporary movement of people and their possessions from locations threatened by a hazard.

m. Fire Hydrant. A valved connection on a piped year around pressured water supply system having one or more outlets that is used to supply hose and fire department pumpers with water.

n. Fire Lane. A means of access or other passageway designated and identified to provide access for emergency apparatus where parking is not allowed.

o. Fire Protection Authority Having Jurisdiction (FPAHJ). The organization, office, or individual responsible for approving equipment, an installation, or a procedure and having jurisdiction (as established by action described in, and in accordance with, Montana Codes Annotated).

p. Fire Resistant Landscaping. Vegetation management which removes flammable fuels from around a structure, and access routes to the structure, to reduce exposure to radiant heat. The flammable fuels maybe replaced with green lawn; gardens; certain individually spaced, green, ornamental shrubs; individually spaced and pruned trees; decorative rock or stone; or other non-flammable or flame resistant materials.

q. Fire Resistive or Fire Resistive Construction. Construction to resist the spread of fire, details of which are usually found in the currently adopted edition of the Uniform Building Code or others building code or codes as use by the FPAHJ.

r. Fuel Break. An area, strategically located for fighting anticipated fires, where the native vegetation has been permanently modified or replaced so that fires burning into it can be more easily controlled. Fuel breaks divide fire-prone areas into smaller areas for easier fire control and to provide access for fire fighting.

s. Fuel Hazard Rating. A measure of the fire behavior and the difficulty of fire control in non-fire-resistive materials. At the discretion of the FPAHJ, applicable references may include, but are not limited to, those available from DNRC, NFPA, and others.

t. Fuel Loading. The volume of fuel in a given area generally expressed in tons per acre.

u. Fuel Modification. Any manipulation or removal of fuels to reduce the likelihood of ignition or the resistance to fire control.

v. Fuels. All combustible material within the wildland/urban interface, including vegetation and structures.

w. Greenbelt. An area with fire-resistive vegetation (planted or native), maintained to cause a reduction in fire intensity, and used for other than fire protection (golf course, cemetery, park, playground, mowed park, orchard, etc.).

x. Ground Fuels. All combustible materials such as grass, duff, loose surface litter, tree or shrub roots, rotting wood, leaves, peat, or sawdust that typically support combustion.

y. Hammerhead "T". A roadway that provides a "T"-shaped, three-point turnaround for emergency equipment that is no narrower than the road that it serves. The top of the "T" shall be a minimum of 40 ft (12.19 m) long in each direction (see Turnaround).

z. Hazard. A fuel complex defined by kind, arrangement, volume, condition, and location, that determines the ease of ignition and/or of resistance to fire control.

aa. Ladder Fuels. Fuels that provide vertical continuity allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease.

bb. Life Risk. Events, actions, or situations created by emergency incidents that have the potential to cause serious injury or death to people.

cc. Life Safety. Actions taken to prevent the endangerment of people threatened by emergency incidents or by activities associated with the management.

dd. Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the Fire Protection Authority Having Jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets identified standards or has been tested and found suitable for a specified purpose.

ee. Mitigation. Action that moderates the severity of a fire hazard or risk.

ff. Noncombustible. A material that, in the form in which it is used and under the conditions anticipated, will not aid combustion or add appreciable heat to an ambient fire.

gg. One-Lot Subdivision. The subdivision of an existing parcel of land that creates only one new lot, where the remainder parcel is 160 acres or greater.

hh. Professional Engineer (PE). An engineer licensed in Montana and approved by the FPAHJ.

ii. Public-Access Easement. A thoroughfare that has been dedicated for public use.

jj. Rated Roof. A roof constructed with a "roof covering assembly" that is listed as meeting the requirements for Class A, B, or C "roof covering assembly materials" as determined by the FPAHJ. At the discretion of the FPAHJ, applicable references may include, but are not limited to, NFPA and other codes or listing authorities.

kk. Roadway. An open way for passage of vehicles giving access to more than one parcel.

ll. Shall. Indicates a mandatory requirement.

mm. Should. Indicates a recommendation or that which is advised but not required.

nn. Shoulder. Surface of a road adjacent to the traffic lane.

oo. Slope. Upward or downward incline or slant, usually calculated as a percent of slope [rise or fall per 100 ft (30.45 m) of horizontal distance].

pp. Street or Road Identification Signs. Any sign containing words, numbers, directions, or symbols that provides information to emergency responders.

qq. Structure. That which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

rr. Traffic Lane. That portion of a roadway that provides a single lane of vehicle travel in one direction.

ss. Turnaround. A portion of a roadway, unobstructed by parking, that allows for a safe reversal of direction for emergency equipment.

tt. Turnouts. A widening in a travel way of sufficient length and width to allow emergency vehicles to pass one another.

uu. Vegetation Management Plan. A vegetation management plan reduces the amount of fuel available for wildland fires, reducing the probability of a rapidly spreading wildland fire. Elements of the plan include removal of slash, snags, other ground fuels, ladder fuels and dead trees, and thinning of live vegetation.

vv. Water Supply. A source of water for fire fighting activities.

ww. Wildland Fire. An unplanned and uncontrolled fire spreading through vegetative fuels, at times involving structures.

xx. Wildland/Urban Interface (or Structure-Wildland Interface). An area where improved property and wildland fuels are both present.

Appendix 1 - WILDLAND FIRE RISK AND HAZARD SEVERITY ASSESSMENT FORM

Assign a value to the most appropriate element in each category and place the number of points in the column on the right.

Element		**Points**
A. Means of Access		
1. Ingress and Egress		
a. Two or more roads in/out	0	
b. One road in/out	7	
2. Road Width		
a. ≥7.3 m (24 ft.)	0	
b. ≥6.1 m (20 ft) and <7.3 m (24 ft).	2	
c. <6.1 m (20 ft)	4	
3. All-Season Road Condition		
a. Surfaced road, grade <5%	0	
b. Surfaced road, grade >5%	2	
c. Non-surfaced road, grade <5%	2	
d. Non-surfaced road, grade >5%	5	
e. Other than all-season	7	
4. Fire Service Access		
a. ≤91.4 m (300 ft.) with turnaround	0	
b. >91.4 m (300 ft) with turnaround	2	
c. <91.4 m (300 ft) with no turnaround	4	
d. ≥91.4 m (300 ft) with no turnaround	5	
5. Street Signs		
a. Present {10.2 cm (4 in.) in size and reflectorized}	0	
b. Not present	5	
B. Vegetation (Fuel Models)		
1. Characteristics of Predominate Vegetation Within 91.4 m (300 ft.)		
a. Light (e.g., grasses, forbs, sawgrasses, and tundra) NFDRS Fuel Models A, C, L, N, S, and T	5	
b. Medium (e.g., light brush and small trees) NFDRS Fuel Models D, E, F, H, P, Q, and U	10	
c. Heavy (e.g., dense brush, timber, and hardwoods) NFDRS Fuel Models B, G, and O	20	
d. Slash (e.g., timber harvesting residue) NFDRS Fuel Models J, K, and L	25	
2. Defensible Space		
a. More than 30.48 m (100 ft) of vegetation treatment from the structure(s)	1	
b. 21.6 m to 30.48 m (71 ft. to 100 ft.) of vegetation treatment from the structure(s)	3	
c. 9.14 m to 21.3 m (30 ft. to 70 ft.) of vegetation treatment from the structure(s)	10	
d. <9.14 m (30 ft.) of vegetation treatment from the structure(s)	25	
C. Topography Within 91.4 m (300 ft.) of Structure(s)		
1. Slope <9%	1	
2. Slope 10% to 20%	4	
3. Slope 21% to 30%	7	
4. Slope 31% to 40%	8	
5. Slope >41%	10	

WILDLAND FIRE RISK AND HAZARD SEVERITY ASSESSMENT FORM (continued)

Element	Points	
D. Additional Rating Factors (rate all that apply)		
1. Topographical features that adversely affect wildland fire behavior	0-5	
2. Areas with a history of higher fire occurrence than surrounding area due to special situations (e.g., heavy lightning, railroads, escaped debris burning, and arson)	0-5	
3. Areas that are periodically exposed to unusually severe fire weather and strong dry winds	0-5	
4. Separation of adjacent structures that can contribute to fire spread	0-5	
E. Roofing Assembly		
1. Class A Roof	0	
2. Class B Roof	3	
3. Class C Roof	15	
4. Non-rated	25	
F. Building Construction		
1. Materials (predominate)		
a. Noncombustible/fire-resistive siding, eaves, and deck (see Chapter 8)	0	
b. Noncombustible/fire-resistive siding and combustible deck	5	
c. Combustible siding and deck	10	
2. Building Setback Relative to Slopes of 30% or More		
a. >9.14 m (30 ft.) to slope	1	
b. <9.14 m (30 ft) to slope	5	
G. Available Fire Protection		
1. Water Source Availability		
a. Pressurized water source availability		
1892.7 L /min (500 gpm) hydrants ≤304.8 m (1000 ft) apart	0	
946.4 L/min (250 gpm) hydrants ≤304.8 m (1000 ft.) apart	7	
b. Non-pressurized water source availability (off site)		
≥946.4 L/min (250 gpm) continuous for 2 hours	3	
<946.4 L/min (250 gpm) continuous for 2 hours	5	
c. Water Unavailable	10	
2. Organized Response Resources		
a. Station ≤8 km (5 mi.) from structure	1	
b. Station >8 km (5 mi.) from structure	3	
3. Fixed Fire Protection		
a. NFPA 13, 13R, 13D sprinkler system	0	
b. None	5	
H. Placement of Gas and Electric Utilities		
1. Both underground	0	
2. One underground, one above ground	3	
3. Both above ground	5	
I. Totals for Home or Subdivision (Total of all points)		

Hazard Assessment	Total Points
Low Hazard	<40
Moderate Hazard	40 – 69
High Hazard	70 -112
Extreme Hazard	>112

TABLE 1: Fire Protection Water Supply Options by Type of Residential Subdivisions

Type of Residential Subdivision	**Fire Protection Water Supply Options** (as described in Table 2 below)
Major Subdivision (49 or less lots/units)	Select from one of the following options: i. A ii. E iii. I and either D or F
Major Subdivision (50 or more lots/units)	Select from one of the following options: i. A ii. I and either B or D
Minor Subdivision (1 lot/unit)	Select from one of the following options: i. G ii. I
Minor Subdivision (2 to 5 lots/units) * See also Section 5 of Appendix I.	Select from one of the following options: i. E ii. I and either H or C
Note: Specific details for each option are described in Table 2 below and within the text of Sections 2–5 of Appendix I. In accordance with the content of Appendix I, further requirements may apply depending on the specifics of the project (size of lots, location within the Wildland/Urban Interface, mixed-use development, etc.). The Fire Protection requirements for commercial subdivisions are described in Section 6 of Appendix I.	

TABLE 2: Summary of Fire Protection Water Supply Options for Residential Subdivisions.

Option	**Means of Protection**	**Water Tank Size (Gallons)**	**Flow (gpm)**	**Duration of Flow (Minutes)**	**Hydrant Spacing (Feet)**	**Travel Distance (Feet)**	**Standard**
A	Public Water Supply		1,000 @ 20 psi	120	Per Fire Code		Per Fire Code
B	Public Water Supply		1,000 @ 20 psi	60	< 1000		P.E.
C	Water Supply		1,000 @ draft	120		< 5,000	P.E.
D	Water Supply		500 @ 20 psi	120	< 1000		P.E.
E	Water Storage Tank or Pond	30,000	1,000 @ 20 psi			< 1,000	P.E.
F	Water Storage Tank or Pond	30,000	500 @ 20 psi			< 5,000	P.E.
G	Water Storage Tank or Pond	10,000	1,000 @ draft			< 1,000	P.E.
H	Water Storage Tank or Pond	10,000	500 @ 20 psi			< 5,000	P.E.
I	Automatic Fire Sprinklers						P.E. & NFPA